

A Maintainable Database Driven
Website for non-IT Specialists
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Project Summary

The project evaluates the operations and current web presence of Vancouver Island Holidays UK Ltd., recommends new functionality and information content that could be added to its website and produces a marketing plan to increase the company's online exposure. The project also includes the design, implementation and integration of three of the recommended new functionality components. A key element of the project is that all of the new web site functionality must have the capability to be administered via the use of very easy to use online administration tools as none of the employees of Vancouver Island Holidays have a high level of IT knowledge or experience and there is no budget available for IT training.

Contents

Page Number

- Project Summary i**

- 1.0 Initial Research 1**
- 1.1 Choice of System Development Methodology 1
- 1.2 Vancouver Island Holidays 3
 - 1.2.1 Company Overview 4
- 1.3 CASE Tools 5

- 2.0 Analysis of Vancouver-Island.com 6**
- 2.1 Overview 6
- 2.2 The Navigation Bar 6
- 2.3 Individual Web Page Analysis 7
 - 2.3.1 Home Page 7
 - 2.3.2 Property Location Summary Page 8
 - 2.3.3 Property Location Pages 8
 - 2.3.4 Individual Property Pages 10
 - 2.3.5 Check Availability Page 10
 - 2.3.6 Map Page 12
 - 2.3.7 Contact Details Page 12
 - 2.3.8 Travel Links Page 13
- 2.4 Search Engine Presence and Meta Data 13
- 2.5 Web Site Usage/Visits 13
- 2.6 Hosting 13
- 2.7 Conclusion 13

- 3.0 Competition Analysis 15**
- 3.1 Overview 15
- 3.2 Great Spots 15
- 3.3 Ideal Vacation Rentals 16
- 3.4 Tofino Beach Homes 16
- 3.5 Competition Analysis Conclusion 17

4.0	Generation of Ideas	18
4.1	Website Content Enrichment Ideas	18
4.2	Website Functionality Enrichment Ideas	19
5.0	Evaluation of Ideas	20
5.1	Functionality Evaluation	20
5.2	Content Enrichment Evaluation	25
6.0	Selection of New Website Functionality	29
7.0	Design and Implementation	30
7.1	Requirements Lists	30
7.1.1	E –WEB	30
7.1.2	Property Locator	30
7.1.3	Click-able Image Map	31
7.2	Database Design	31
7.2.1	Data fields for Property Pages	32
7.2.2	Data Fields for Location Pages	33
7.2.3	Data Fields for Click-able Image Map	34
7.2.4	Data Fields for Menus	34
7.2.5	Database Tables	35
7.2.6	Database Security	36
7.3	New Web Page Requirements	36
7.3.1	Web Site Administration Pages	37
7.3.2	Public Access Pages	37
7.4	New Graphic Requirements	38
7.5	Graphical User Interface Design and Prototyping	38
8.0	Prototyping	40
8.1	Implementation of the Prototype	40
8.2	Prototype Testing and User Involvement	40
8.3	Modifications to Design	40
9.0	Testing Plan	41
10.0	Implementation	42

11.0	Testing	43
11.1	Testing Feedback	43
12.0	System Go-Live	44
12.1	Phase 1, Vancouver Island Holidays Go-Live	44
12.2	Phase 2, Public Access Go-Live	44
13.0	System Evaluation	45
13.1	System Usage by Vancouver Island Holidays	45
13.2	Website Usage	45
13.3	Website Limitations	46
13.4	Success or Failure?	46
	Bibliography	47
 Appendices		
A	Project Evaluation	48
B	System Requirements / Design	50
C	Completed Testing Plan	67
D	Marketing Report	79
E	Training Manual	81

1.0 Initial Research

In order for this project to be a success I first had to choose a good development methodology to use as an aid in the structuring of the project. A good project structure is almost essential in keeping a project on schedule and maximising the chances of its success. I also needed to research the company, Vancouver Island Holidays to gain a good understanding as to how they operate. Research also had to be made in order to decide which, if any CASE, computer aided software engineering tools to use at each stage of the project.

1.1 Choice of System Development Methodology

As discovered from studying various modules in my degree, including People Centred Information Systems in my third year there is a huge choice of different system development methodologies to choose from. No methodology is perfect for use in every situation as all have their strengths and weaknesses.

The Systems Development Life Cycle, SDLC is one of the original software development methodologies to be widely used and forms the basis of many more recently developed methodologies. A project is split up into six stages as shown below.

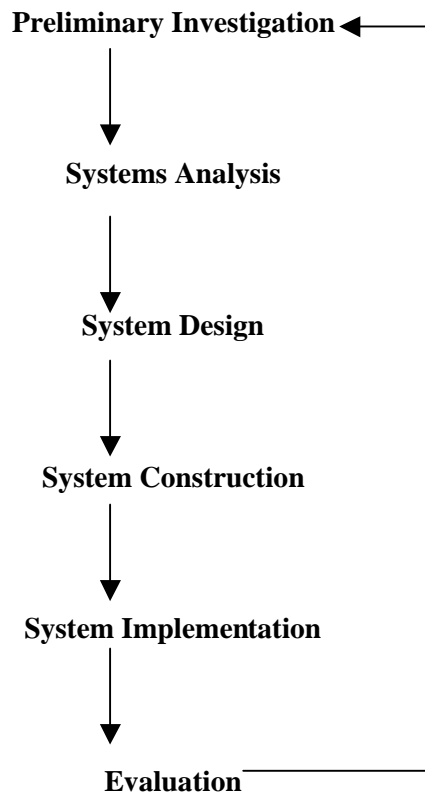


Figure 1. The SDLC

The SDLC is still very appropriate to situations where system requirements are predictable and particularly where there is a system already in existence. It is very inflexible, as each stage must be followed in turn as illustrated in figure 1. Many weaknesses apparent in systems developed using the SDLC due to its inflexibility have been identified including the system's failure to meet management needs, an un-ambitious system design, user dissatisfaction, lack of control and incomplete systems being implemented. Due to its inflexibility I chose not to use this methodology.

The Structured Systems Analysis and Design Methodology, commonly known as SSADM is a "softer" methodology directly based on the SDLC. It was developed in the UK by consultants Learmonth and Burchett in conjunction with the Central Computing Telecommunications Agency and became in 1983 mandatory in civil service applications. The methodology is primarily concerned with good system design and not with later project stages including that of implementation. A project is split into the following seven key stages:

1. Feasibility
2. Investigation of current environment
3. Business system options
4. Definition of requirements
5. Technical system options
6. Logical design
7. Physical design

Good aspects of the methodology include a high emphasis on documentation, data modelling and the increasing encouragement of user involvement.

"It is said to be a data-driven methodology because of its history and emphasis on data modelling and the database, but in its later versions has become more balanced, with, for example, importance attached to the role of users."

Avison and Fitzgerald (1995)

As the methodology is not really concerned with the stages of implementation or testing of a project I chose not to use it.

Another system development methodology that concentrates even more on user involvement at all key stages of the project is called Effective Technical and Human Implementation of

Computer Based Systems, ETHICS. The methodology is aimed at allowing users to design their own information systems in order to increase job satisfaction. As the majority of the users of the website will be the anonymous general public it would be practically impossible to enable them to design their own system, so I chose not to use this methodology.

The Waterfall Life Cycle is also a very old methodology that originates from the manufacturing industry. A project is split up into five easily definable stages as shown in the diagram below.

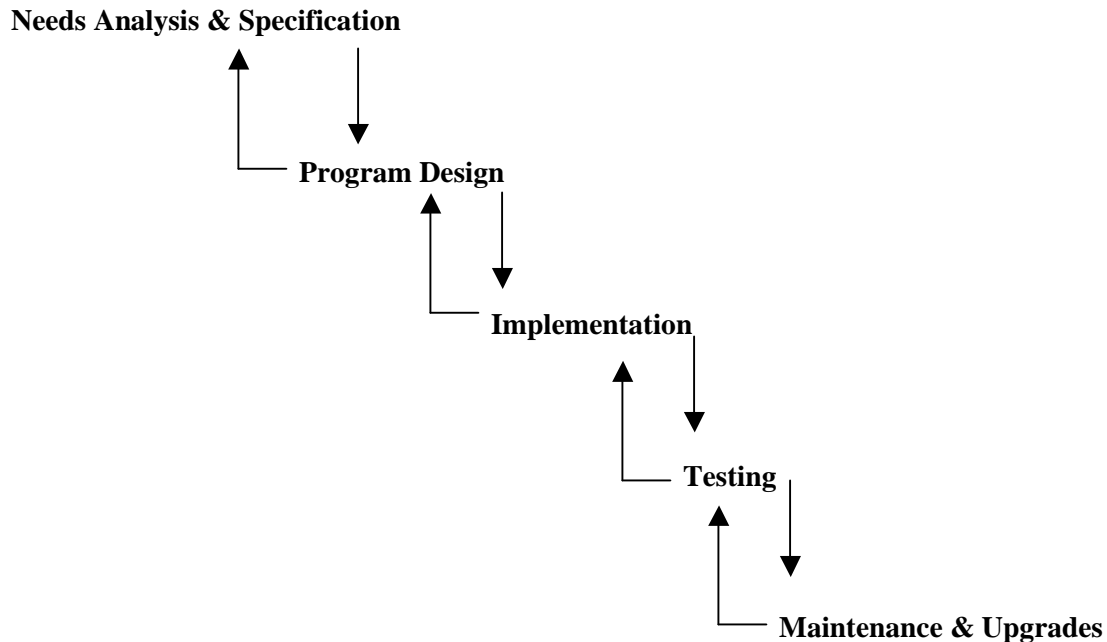


Figure 2. The Waterfall Life Cycle

As indicated above this methodology is a lot more flexible than the more traditional SSADM and SDLC methodologies previously described. It allows simple iterations to take place. It is possible to move back up the “waterfall” to a previous stage if severe problems are experienced for example if pitfalls in design were found. Due to its flexibility I choose to use this methodology as a basis for the project. Using it helped identify key required decision points and helped give the project structure. I also believed that since I would be working primarily on the project it would be easy to move between iterations if required, if I was working as part of large project team moving between stages would be a lot more difficult and costly as often different people are involved at each stage.

1.2 Vancouver Island Holidays

Research into the way in which Vancouver Island operates was required to give me a better understanding of how the company internally functions, enabling me to analyse which solutions

would best serve their needs both now and in the future.

I started research into Vancouver Island Holidays by first examining their existing website, www.vancouver-island.com. Information on the company itself was found to be severely lacking and so I continued my research by consulting their 2001 full colour brochure. In the brochure a very brief overview of the company's operations can be found, however still lacking detail I arranged an interview with the director who gave me a full company overview. A brief summary can be found below.

1.21 Company Overview

Vancouver Island Holidays is a small limited company that is registered both in Birmingham, UK and in Nanaimo, Vancouver Island, Canada. The limited company was started six years ago to fill a niche in the vacation accommodation market on Vancouver Island. The company specialises in the renting of privately owned superior accommodation on Vancouver Island to tourists primarily from the UK and Europe.

Vancouver Island lies approximately ten miles off the West Coast of British Columbia Canada and is easily accessible by car ferry or light aircraft from Vancouver or Seattle. Over the past eight years Vancouver Island has experienced a major growth in tourism. Tourists flock to the island to experience the unique combination of snow capped mountains, un-crowded beaches, crystal clear lakes, cascading waterfalls and ancient rainforests with cedars and Douglas.

The company started trading in year one with only six properties available for rental. Properties were displayed in a full colour gloss brochure. The company advertised in national press travel supplements in the UK and Germany and racked its brochures in Canada House in Trafalgar Square London. After a successful first year the company increased its accommodation listings by heavily advertising in newspapers on Vancouver Island targeting private homeowners. Sales revenue have increased significantly each successive year and is predicated to rise further for the next five years.

Due to the recent atrocities of September 11th in America causing a vast reduction in airline passenger confidence the company has now begun targeting holidaymakers from Canada and America within driving distance of the Island.

Three years ago, in year three of trading, Vancouver Island Holidays invested in the development of a small website to display their brochure contents online, the main purpose of this exercise was to

provide a home for its recently bought domain name, Vancouver-Island.com. This proved to be very successful, with over 30% of booking enquires originating in year five from its website.

The company now wishes to expand the services offered by its website and the company's exposure on the web.

1.3 CASE Tools

I would class this project in my experience as rather small scale, and so I believe it to be important not to spend too much valuable time analysing CASE tools that could possibly be used during each stage of the project. As the time taken installing, evaluating and learning how to use the tool efficiently may well not be made up during the stage of the project where it is to be used.

As there will only be myself working on the project an overall project management tool will not be used apart from the chosen methodology and my own personal management skills, as there is no facility for task allocation. CASE tools will primarily be used to aid in the implementation stage. I have began to evaluate a number of website authoring and web graphic creation tools including:

- Macromedia Dream Weaver 4
- Microsoft FrontPage 2000
- Macromedia Flash 5
- Macromedia Fire Works 4
- Microsoft PhotoDraw

The use of Macromedia Flash would require browsers using older browser versions to download and install a plug-in. As many users are reluctant to do this I decided not to use any Flash on the website. Fireworks and Dream Weaver are very powerful applications, however I prefer to write my own ASP and HTML code, on doing so I find bug fixing much easier, so I have chosen to use the Microsoft FrontPage 2000 the majority of implementation will be written using the application's HTML editor. I will use the application to automatically format text and tables. Microsoft PhotoDraw offers excellent functionality for creating web compatible images. I would be inclined to use this tool for image creation where possible simply for ease and speed of use.

2.0 Analysis of Vancouver-Island.com

2.1 Overview

The existing website of Vancouver Island Holidays provides users with a well-structured easy to use site. The site consists one hundred percent of static content and is purely html based. There is at present no use of any cascading style sheets, the layout of each page is controlled by tables. The website is only available in English. In order to structure the analysis I chose to use SWOT to identify the key strengths, weaknesses, opportunities and threats of each web element / page.

2.2 The Navigation Bar



The standard navigation bar can be found on the left of every page in the site, giving the user a consistent navigation system throughout the site interface.

The navigation bar provides direct access to the:

- Property location summary page
Web page for each property location page contains brief location information and relevant property listings for the area.
- All property location pages
Web page summarising all property locations.
- Home page
- “Check availability” form
Web form enabling users to easily check property availability.
- Contact details page
- Map page
- Travel links page

Figure 2. Vancouver-Island.com Navigation bar

Strengths

The navigation bar is very easy to use and always receives good feedback from site visitors giving users direct access to all areas of the site.

Weaknesses

The bar is separately coded in each page of the website creating an enormous amount of work for a simple link update or addition of a new property location.

Opportunities

Updates required to the navigation bar could be greatly reduced by identifying the location of

properties using North Island, South Island etc, allowing properties in locations of close proximity to be grouped together.

A frame set or active server page with a small database would allow all web pages in the site to use the same instance of the navigation bar resulting in updates to the bar only having to be completed once.

Threats

Visitors to the site are familiar and happy with the navigation bar so large changes to the user interface should be avoided.

2.3 Individual Web Page Analysis

2.3.1 Home Page

The home page of the site can be accessed from any of the URLs listed below:

- <http://www.vancouverislandholidays.com>
- <http://www.vancouver-island.com> (most commonly used).
- <http://www.vih.uk.com>
- <http://www.vihski.com>

On this page the user is given brief general information on Vancouver Island and the service the company, Vancouver Island Holidays offers its clients. The accommodation available is introduced with the website's only animated graphics, a FrontPage banner ad manager, rotating 3 images.

- **Strengths**
The user is not overwhelmed with information or animated graphics.
The page is fast to download.
- **Weaknesses**
The information contained on the page is extremely brief. The images used in the banner ad are small and of poor quality.
The page consists entirely of static content it has not been updated for over 3 years.
- **Opportunities**
Information on both Vancouver Island, and the company could be easily extended through the use of additional pages and hyperlinks. The activity images could be converted to hyperlinks to link to further information pages.
Visitors could be encouraged to revisit the home page by the introduction of dynamic content e.g. a "What's new" section displaying company news, messages and newly available properties.
- **Threats**
The page could become overloaded with content, which would greatly increase download time and decrease user readability.

2.3.2 Property Location Summary Page

The page provides very brief text descriptions of all locations where accommodation is on offer. A link to each property location page is provided from each location title.

Properties are currently divided into 7 locations:

- Victoria and Sooke
- Salt Spring Island
- Nanaimo
- Schooner Cove
- Comox Valley
- Cortes Island
- Tofino

- **Strengths**

Short download time.

Users are given a brief overview of all property locations on one page.

- **Weaknesses**

The page does not make any use of graphics.

- **Opportunities**

The page would benefit from a map indicating the area of each property location. Due to Vancouver Island having beautiful scenery in all locations information could be enhanced with the use of images.

- **Threats**

A page containing too much information is threatened by becoming too busy, site visitors would then find the content hard to read and terminate their session.

On introducing images to the page care should be taken not to greatly increase download time.

2.3.3 Property Location Pages

There are 7 location pages, one for each location. Each page is headed with a repeat description of the location summary information from the property location summary page. Under each description a table is situated displaying a small, poor resolution image and short text description of each property available. From each property name a hyperlink can be followed to individual property pages.

- **Strengths**

Good download time.

Visitors can easily see and compare all properties available in a chosen location.

- **Weaknesses**

A completely new page is required for each new property location.

The text information is simply a repeat of that contained on the property location summary page.

Users can only browse properties by location.

- **Opportunities**

Information on each location could be easily extended to cover many different aspects of the area including:

- Local facilities / services
e.g. Shopping, marinas, vehicle rental, public transport information etc.
- Local activities what to see and do....
e.g. Golf, sailing, hiking, canoeing, whale watching etc.

Links could be fostered with local businesses and either a link exchange program created or advertising space sold on the website.

The use of pictures would greatly increase the visitor's appreciation of the location.

A standard property location template could be developed using active server pages technology to allow the company to easily create, update and remove property locations.

On using active server pages users could be given greater property browsing and searching functionalities, allowing them to compare for example properties on price or accommodation type rather than on only geographical location.

A detailed map of the location could be included to indicate the approximate geographical position of properties.

- **Threats**

With the introduction of rich content care should be taken not to dramatically increase page download time.

On pages containing too much information there is a risk of them becoming too busy resulting in the user experiencing difficulties with reading and absorbing the content.

Reliability of the website could be reduced, by using poorly tested and written active server pages.

2.3.4 Individual Property Pages

Each property is displayed on its own html page. There is no standard layout, however the majority of properties are displayed with the use of two or three small, poor resolution images, and a short text description.

At the bottom of each page a graphic hyperlink gives the visitor access to the “check availability” page.

- **Strengths**

Good down load speed.

Good accommodation layout descriptions.

- **Weaknesses**

- **Low resolution, small images.**

No standard page layout.

Each new property addition requires the building of an entirely new page which is time consuming and expensive for the company to create and update, which often causes the website to contain out of date information.

Price information is only available in Canadian Dollars and Pounds Sterling.

- **Opportunities**

An active server page template could be used for all property pages powered by a small database. A user-friendly online tool could be built to allow the company to easily develop new pages, update and remove existing pages.

With the use of a database and active server pages the visitor could be given a greater choice of currencies including Euros and US Dollars.

The quality of the small images should be improved and used as hyperlinks to larger higher resolution images.

- **Threats**

With the page content increase, pages may become cluttered and hard for the user to read.

With the increase of image quality page download time may increase.

Poorly written and tested active server pages may reduce website reliability and lengthen downtime.

2.3.5 Check Availability Page

The page consists of a html web form whose results are posted in the form of an email to info@Vancouver-Island.com .Users are forced to fill the following mandatory fields:

- Full name, via a textbox field.
- Email address, via a text box field.
- First choice property reference number, via a text box field.

- Date from, via drop down menus field
- Date to, via drop down menus field
- Number of people in party, via a text box field.

The form also consists of the following optional fields:

- Address, via a text area field.
- Telephone number, via a text box field.
- Second choice property reference number, via a text box field.

Apart from checking that mandatory fields are not empty there is no field validation present.

On successful submission of the form the user receives a thank you response in the form of a web page.

- **Strengths**

Users are forced to fill in required form fields.

- **Weaknesses**

First Choice property references are not automatically filled in.

The response time to an availability request is not immediate during busy periods responses can take over twenty-four hours.

The availability of only two properties can be checked on one form.

Only one date range can be checked per form submission.

- **Opportunities**

The property reference number from where the check availability form is accessed could be by default entered into the property first choice field on the check availability form.

The form could be expanded to allow users to select more house preferences and choose multiple date ranges.

Accommodation availability information could be stored in an online database so that vacancies could be checked instantly online.

- **Threats**

Increasing the number of fields on the form may deter visitors as it may become too time consuming.

The online availability database could quickly and easily become out of date unless it was directly linked to a booking database.

2.3.6 Map Page

The page presents the site visitor with a map of Vancouver Island.

- **Strengths**
Good download time.
- **Weaknesses**
The map image is of extremely poor quality and due to its colour scheme light blue, yellow, and white is hard to read. All property locations are not viewable on the map.
- **Opportunities**
A new map should be acquired for the website. The map should have a scale and offer a zoom functionality allowing visitors to select certain areas of the map to view at an increased level of detail. Users should be able to link from the map to a list of properties available in the selected location. The new map should cover all property locations. Travelling times and distances could be made available to visitors with incorporation of a distance / time chart.
- **Threats**
Copyright laws on maps should be observed.
The map image should not be of such high quality that download time is dramatically increased.

2.3.7 Contact Details Page

Provides the user with full contact details of Vancouver Island Holidays UK Ltd.

- **Strengths**
Provides visitors with all possible methods of contact information.
- **Weaknesses**
The layout of the page is unstructured and does not reflect the colour scheme or layout used throughout the rest of the site.
- **Opportunities**
A telephone call back service could be offered.
The page should adopt the standard colour scheme and character set used throughout the site.
- **Threats**
On a large demand for the call back service the company's telephone call charges may rise significantly. Visitors may well choose to make use of the call back service rather than writing an email as it requires less user effort.

2.3.8 Travel Links Page

The page contains three hyperlinks to:

- BC Ferries
- Kenmore Air Seaplanes
- VIA Rail Canada

- **Strengths**

Small download time.

- **Weaknesses**

The list of links and information is too limited.

- **Opportunities**

The list of links should be extended to include international airline carriers, flight websites and car hire specialists.

- **Threats**

The page could be overloaded with links and reduce its readability.

Links may lead via third party websites to direct competition.

2.4 Search Engine Presence and Meta Data

The website is registered with all major search engines.

The home page contains both good detailed keyword and description meta data however, no abstract meta data is present.

2.5 Website Usage/Visits

Over the past twelve months the site received an average of 6,500 visits per month.

2.6 Hosting

At present the site is hosted in Manchester on an apache web sever running on a Unix operating system.

2.7 Conclusion

The foundations of an excellent website are in place. There is a very simple and easy to use navigation system, however the website is lacking in functionality for example a property search facility and dynamic content. The majority of the website content once written is never updated with new information. The graphics used in the site are small and of very low quality. With the introduction of a

couple of database driven active server pages many of the sites weaknesses could be eradicated and some of the opportunities for expansion explored at minimal cost.

3.0 Competition Analysis

3.1 Overview

In order to learn from the success and mistakes of other companies operating in the vacation rental industry on Vancouver Island a competition analysis was carried out.

When Vancouver Island Holidays first started its operations seven years ago, it was the only holiday orientated house rental agency operating on Vancouver Island. With Vancouver Island in recent years becoming a major international / national holiday destination, a number of other rental agencies have started to operate on the island. Competitors were found by searching the web and Vancouver Island tourism brochures. Vancouver Island Holidays' main competitors are:

GreatSpots! Recreation Properties – <http://www.greatspots.com>

Ideal Vacation Rentals – <http://www.idealvationrentals.com>

Tofino Beach Homes – <http://www.TofinoBeach.com>

3.2 Great Spots

Business Analysis

GreatSpots, like Vancouver Island Holidays purely acts as a property rental agency. GreatSpots operates throughout the entire of British Columbia resulting in a much larger property catchment area than that of Vancouver Island Holidays enabling the company to offer its clients a more varied choice of holiday location, however this reduces its capacity to gain in depth specialist local knowledge on all property locations.

Unlike Vancouver Island Holidays the company does not have a full high gloss brochure, its market is solely web based. The content of their website is not guaranteed as only a handful of properties that are within easy reach of their Vancouver office are inspected. Their primary geographical rental market is Canada and America.

Website Analysis

On first impressions the basic page layout is very hard to read and understand. The navigation system is very limited by only sectioning the whole of British Columbia into just five locations. Each location page consists of only a list of the available properties, no information or images are given on each property location. Each property has its page with up to four images per property. Property availability can be only checked via the use of standard email, there is no use of web forms etc. Properties can only be selected via browsing the website, there is no property search facility. A

section of the website that could be adopted by Vancouver Island Holidays is the “New Listing” area listing properties new to the site.

GreatSpots! Conclusion

The level of service and guarantees offered to clients of Vancouver Island Holidays is far superior than that offered by GreatSpots! The website of Vancouver Island Holidays looks and feels a lot more professional, is easier to read and richer in content. To conclude Vancouver Island Holidays offers a higher level of quality and value to its customers.

3.3 Ideal Vacation Rentals

Business Analysis

Ideal Vacation Rentals does not act as a rental agency but simply provides a website where property owners can advertise their accommodation. Its geographical market is enormous, offering property owners in any country of the world the feasibility to advertise their house or apartment. Property owners pay to advertise on their site. No guarantees are made as to the accuracy of the website content, customers rent at their own risk.

Website Analysis

The Ideal Vacation Rentals website looks on first impressions unplanned and unprofessional. Very little use is made of graphics. No information is available to the visitor on property locations, browsers are simply met with a list of accommodation. The site has no search facility, making it difficult to select properties to view in similar price brackets or size. Due to the site using only extremely basic HTML the site will be extremely compatible with very old web browsers.

Ideal Vacation Rentals Conclusion

From a business perspective Vancouver Island Holidays and Ideal Vacation Rentals are not in direct competition, however their websites try to achieve the same goal by advertising properties to rent. The only element found on the Ideal Vacation Rentals website that will influence the design of the new elements of functionality for the Vancouver Island Holidays was the use of code that is compatible with older browser versions of both Netscape and Internet Explorer.

3.4 Tofino Beach Homes

Business Analysis

Tofino Beach Homes like Vancouver Island Holidays is a house rental agency operating on

Vancouver Island. Their business as with GreatSpots! Is one hundred percent web orientated. Tofino Beach Homes has a very small property catchment area, that of Chesterman Beach on the West Coast of Vancouver Island. Vancouver Island Holidays also has properties listed at this location. Tofino Beach Homes also inspects all of their houses and is so able to offer similar guarantees as Vancouver Island Holidays to its vacation tenants. Tofino Beach Homes primarily targets the North American markets.

Website Analysis

The Tofino Beach Homes website looks very professional in design and layout, with a lot of attention to detail. A Flash splash screen is used to give the visitor a good insight to the peacefulness and natural beauty of the area. The whole website allows the user to feel relaxed using natural soft colours and an easy to follow layout. The website's content is solely based around the properties on offer, apart from a good interactive picture gallery from Chesterman Beach on the home page.

Tofino Beach Homes Conclusion

Tofino Beach Homes can be classed as a direct competitor of Vancouver Island Holidays. The design of Vancouver Island Holidays' new website would also benefit from a Flash splash introduction screen to give the website visitor a good first impression of the site.

3.5 Competition Analysis Conclusion

From analysing the competition of Vancouver Island Holidays it was clear that a lot can be learned from the mistakes and successes of other companies in the vacation rental industry in British Columbia.

4.0 Generation of Ideas

After reviewing the existing website for Vancouver Island Holidays and from conducting competition analysis, the current website of the company is clearly lacking in content and functionality. In order to decide which areas of functionality and content to expand the project took on a phase of ideas generation. The ideas were categorised as either content enhancements e.g. increased use of images, additional location information or as functionality enhancements e.g. a property search facility. All members of the company's staff were asked to contribute with ideas. This not only allowed them to influence the new website design with their personal feelings but also by that of what customers had expressed to them via recent telephone conversations and emails after using the existing website. Members of staff would also be aware of the most commonly asked questions which could in themselves become a new frequently asked questions section of the site. By consulting the members of staff it gave them a feeling of involvement and interest in the project, which would aid in the marketing of the site to telephone customers on go-live.

4.1 Website Content Enrichment Ideas

- Increased use of good quality images.
As identified by the full analysis of Vancouver-Island.com the quality and frequency of image use on the existing site is poor.
- Increased use of Maps
Many clients did not even know where Vancouver Island was never mind what the names of the major towns of the property locations were.
- More property location information.
Many clients who had not been to Vancouver Island before always requested more information in the form of both text and graphics on property locations.
- Distance Charts
Members of staff are constantly contacted to provide approx. distances between property locations.
- 360 degree interior images
- Video Clips of Properties
- Information on National Parks on Vancouver Island.
- More external links to information.
- A German language edition of the website.

4.2 Website Functionality Enrichment Ideas

- Enable easy creation / amendment / deletion of property locations.
- Enable easy creation / amendment / deletion of individual property pages.
- Enable business ownership of all content regarding property locations and individual property locations.
- Online real-time availability.
- Full online booking service including secure merchant services.
- Property search facility.
- Click-able images of maps for property searching.
- Interactive online property guest books.
- Interactive online what's on calendar for Vancouver Island.
- Dynamic home page content. – Vancouver-Island.com News.
- Dynamically created site map to aid with site navigation.
- E-Postcards.
- Interactive FAQ, Frequently Asked Questions section.
- Virtual Tourist help centre – Providing tourists with essential local information.

5.0 Evaluation Of Ideas

Due to the short timescale of this project and nature of some of the ideas it would be unreasonable to implement all of the ideas listed in the previous chapter. In order to choose which ideas to design and implement a full evaluation report of all ideas was compiled.

In order to create a rough implementation guideline a day was spent at Vancouver Island Holidays assessing its resources. E.g. Software licences, hardware, photograph libraries etc.

5.1 Functionality Evaluation

- **Enable easy creation / amendment / deletion of property locations and individual property pages.**

Benefits: Information contained on the website could be easily and very efficiently updated by members of staff with no HTML or web programming skills. Creation of web pages would no longer have to be outsourced, producing a large cost saving. On using standard Active Server Page templates layout and design across the entire website would become consistent allowing easier site navigation and an overall more professional look and feel.

Implementation: Many different technologies could be adopted however due to recent experience with active server pages, this would be my preferred choice of technology. ASP template pages would be created for the display, amendment and deletion of location and individual property information pages. Information including property descriptions and image links would be stored in a small, secured Microsoft Access Database. Image files would be uploaded to the web server by the use of Internet Explorer 5's FTP functionality, a process that members of staff are already familiar with.

Dangers: Strict regular backups of the database should be made to avoid data loss. Some older web browsers may not support active server pages.

- **Business ownership of property and location information.**

Benefits: Information on the website would be easily and regularly updated. A large percentage of the cost currently incurred by outsourcing web page updates could be removed. The information on the website would become more accurate as third parties i.e. web developers would not be involved. Existing members of staff could have their jobs enriched to include updating the website, increasing job satisfaction in the company and reducing staff turnover.

Implementation: An ASP driven online administration tool would give business administrators the functionality to edit / add / delete website content.

Dangers: Users given the administrator writes to the company website should be properly trained. Passwords to the system should be regularly changed for security reasons. Users should only be given the necessary writes required for their job.

- **On-line real-time availability**

Benefits: Visitors could receive instant availability feedback encouraging them to make an on the spot decision regarding a booking.

Implementation: At present there is no electronic availability system used by the company, availability is stored in paper files and all bookings are confirmed individually with property owners. An office database would first have to be designed and implemented and regularly synchronised with a similar web based system. An alternative would be to install an “always on” web connection e.g. ADSL and integrate as required the two systems. This functionality would not only require a new database system but also new contractual agreements with private property owners, which could cause many owners to terminate dealings with the company.

Dangers: The web database may contain incorrect data consequently overbooking or leaving properties empty. Competition would have direct access to the company’s stock information.

- **On-line booking service with merchant services**

Benefits: Paper based booking would be replaced by electronic web forms, allowing automatic checks to ensure booking forms were correctly filled in. Booking information would be sent electronically to the office where it could either be manually or electronically processed. As the information would be already in electronic format errors from data entry would be significantly reduced. Merchant services would enable booking deposits to be taken at time of booking and not approx 5 days later due to the current system requiring mailed cheques. Credit card payments could be accepted from all the world where credit card support exists. Customers would have the additional security that paying by credit card offers.

Implementation: The company would have to apply for a merchant licence from its issuing bank, this could in itself be a problem as many banks are weary of web transactions particularly when involving travel companies, the license could be refused or very high commissions per transaction charged. Electronic web forms would be used to replace paper based booking forms

Dangers: Credit fraud on the Internet is at an alarmingly high level. Credit numbers must be validated and customers credit card details should not only be encrypted during transmission but also securely stored at Vancouver Island Holidays. An investment may not pay off into online booking, as many customers still do not trust the security of e-commerce and so would

still prefer to use the old proven system of posted cheques. Commission transaction charges may force excess payments to be levied on top of credit card transactions in order to maintain profit margins, reducing the attractiveness of the new system even further to the consumer.

- **Property search facility.**

Benefits: Visitors to the site would have the facility to compare not only properties on location but also on search criteria e.g. Weekly rental price and accommodation type etc.

Implementation: Property features would be stored in an online Microsoft Access Database, which would be queried via a simple web form connected to an active server page. Search results would be displayed via another active server page. The property search facility database could utilise if designed correctly the individual property pages and property location information database.

Dangers: The database will only support a limited number of connections, website use should be monitored and if near full capacity is reached the database should be moved onto an SQL server, this would unfortunately increase the cost of website hosting from the currently used Internet service provider.

- **Click-able image maps for property searching**

Functionality described in section 5.2 of this report.

- **Interactive online property guest books**

Benefits: Visitors to the site could share experiences of previous property tenants, giving the visitor an unbiased third party opinion of properties and the level of service offered by the company. As the company only lists properties of high standards and offers an excellent service to tenants these comments would aid in encouraging visitors in becoming customers.

Implementation: Comments would be submitted into a small database. On the submission of a new guest book entry an email would be generated and sent to the website admin group of the company. The email would contain a link to an active server page displaying the submitted information, from here the content can either be approved or deleted, only approved comments would appear on the website.

Dangers: Care must be taken not to allow damaging comments to appear on the website. The approval page should be secure and its password changed regularly.

- **Interactive online what's on calendar for Vancouver Island**

Benefits: This functionality would not only benefit perspective tenants of Vancouver Island Holidays but also the local communities enabling them to advertise their events for free

online. This “free” additional information service would also encourage more visitors to the site on a regular basis to check for new events and to refresh themselves with existing event details.

Implementation: Web forms would be used to submit and amend event information to a Microsoft Access Database via ASP, on selecting a property location events page, local events would be displayed from the database via an active server page.

Dangers: The database could become extremely large so events should automatically be deleted after a predetermined amount of time after the event has taken place to save space in the database. Secure event ids would have to be issued or personal information taken to enable validation of event posters to take place for event details to be modified. Vancouver Island Holidays should make clear to the browser that they are in no way liable for the content held on the events pages. Form validation should be used to prevent incomplete events from being posted.

- **Dynamic home page content. – Vancouver-Island.com News**

Benefits: Visitors would be encouraged to visit the new home page on a regular basis to find out the latest new property listings and company news.

Implementation: News would be stored in a secured Microsoft Access Database an ASP section of the home page code would retrieve and display the latest news from the database. News would be posted / amended and removed via web forms on the web server.

Dangers: Access to news posting pages and write access to the database should be kept secret, it would be very harmful to the company, if “hackers” posted milieus news items onto the front of the website. The database will have a limited number of connections at any one time available, server traffic should be monitored and if near capacity is reached the database should be moved to a large database server e.g SQL Server from Microsoft.

- **Electronic postcards**

Benefits: Website users will send e-postcards to more than likely non-website users and so this activity will help market Vancouver-Island.com this facility could be seen as a form of free advertising for the company.

Implementation: With the natural beauty and splendour of Vancouver Island it would not be difficult task to find postcard quality photographs from the libraries held by the company. Postcards would be created by completing a web form, which on submission would create a new database entry and send an email to the chosen recipient. The email would contain a link to an active server page that would retrieve the text and image link information to be displayed as a web page.

Dangers: Usage should be monitored as not to allow the mail servers performance to deteriorate and affect the performance of business critical company e-mail.

- **Interactive FAQ, Frequently Asked Questions section.**

Benefits: This section of the website at the start would contain the most commonly asked questions and solutions currently dealt with by staff at Vancouver Island Holidays. This would increase the information content of the site and reducing the amount of time spent by staff answering the commonly asked questions. New questions and answers would be posted to the section as the need arose.

Implementation: Information would be stored in a secured Microsoft Access Database and be input / amended / deleted via web forms and active server pages. The website visitor would initially be able to browse the FAQ list. If the number of FAQs increased dramatically an FAQ search tool could be created, the initial database design should allow for this to take place.

Dangers: The company should have an approval process of FAQs to ensure the information posted remained of high quality and correctness. The database will have a limited number of connections so website traffic should be monitored and if it were to reach near full capacity the database should be moved onto a larger, dedicated database server. The passwords for the system should be changed regularly in order to ensure that the system remains secure. Regular backups of the database should be taken to safe guard against data corruption and virus attacks.

- **Virtual tourist help centre. – Providing tourists with essential local information.**

Benefits: This section of the site would be a one-stop shop for all essential travel information on Vancouver Island. Including such items as where the nearest doctors, dentists, shops, chemists, wildlife dangers are to property locations etc. The information deemed important by each customer could be printed from the web before departure and carried alongside their travel documents.

Implementation: An active sever page template which would be created and populated with information from a database. A database entry would be present for each property location. The virtual tourist help centre would be accessed via a hyper link on each property location page. Information in the database would be updated via web forms and active server pages.

Dangers: It should be made clear to the user that the company, Vancouver Island Holidays is in no way responsible for the actions of companies listed or that the website availability is guaranteed.

5.2 Content Enrichment Evaluation

- **Increased use of graphics**

Benefits: A picture is worth a thousand words. This is true for a good quality image, however poor quality images as currently used on many pages of the current website could be said to be worth a thousand negative words. As all of the properties of Vancouver Island Holidays are of extremely high quality more images of accommodation could only entice and encourage browsers to become customers of Vancouver Island Holidays.

Implementation: At present images for the website are prepared “in house”, this procedure should be examined and where possible improved. A standard procedure for creating good quality web images should be created. As Vancouver Island Holidays already owns an extensive library of good quality photographic images, it would be sensible to abuse this resource for the website.

Dangers: Users could attempt to create images of extremely high quality that would be unsuitable for the web due to their size and resolution.

- **Upgrade of maps. – Click-able image map**

Benefits: At present the website contains only one map of Vancouver Island. This map image has a large file size resulting in visitors connecting via a low band-width connection i.e. an analogue telephone line of which approximately eighty percent of users use, experiencing high download times. On presentation of the map most users are disappointed with its content as many property locations are not marked and the majority of town names are illegible due to the use of poorly contrasting colours. On converting the map image to a click-able image map, the map could be sectioned allowing users to click locations on the map, which would behave as hyperlinks, linking to relevant properties. The quality of the map should also be improved to allow all place names to be legible.

Implementation: The original map image taken from the colour brochure should be re-scanned at the correct resolution, using a graphics suite e.g. Corel Draw 8 or Microsoft PhotoDraw of which the company already has licensed copies installed, the image should be converted to a click-able image map sectioned into business defined locations. The images produced for the image map would then be saved at a suitable compression to improve and so, reduce download time but not drastically reduce the legibility of the map.

Dangers: The map property locations must be carefully designed by the business as image maps are not dynamically created and therefore will not be easily modified. Care must be taken as to not distort the image by using too much compression.

- **Distance Charts**

Benefits: Distance charts would help clients to plan journeys / day trips and would give them a good idea of the size of the island.

Implementation: A distance time chart could simply be copied from a tourism brochure and inserted onto the website, as Vancouver Island Holidays is allowed to use any material from tourism brochures. An alternative would be to introduce a scale on the map so that users could calculate their own approximate journey distances. This approach has the added advantage of users being able to calculate the distance of any journey on the island and not just those listed in the distance chart.

Dangers: As with all website content care must be taken to ensure that map scales and or data contained in distance charts is as accurate as possible.

- **Additional property location information.**

Benefits: Full house inventories could be made available to visitors including floor plans and room sizes.

Implementation: Detailed survey of all properties would be required, floor plans would either have to be obtained from property owners or drawn by the company.

Dangers: The amount of time required for such a detailed property survey would be very time consuming and so therefore costly. House inventories would need to be updated annually to reflect any required amendments.

- **360 degree images**

Benefits: A much better interior display of properties can be achieved by the use of 360 degree images. Visitors would experience an almost virtual reality tour of properties.

Implementation: New series of pictures would have to be taken for each 360 degree image. Images would need to be taken with the aid of a tripod at a 30 degree angle adjacent to each other, each 360 image would require 12 images. The pictures should be taken with a wide angled lens of approximate 24mm, a new camera lens would need to be purchased by Vancouver Island Holidays or a professional photographer contracted to undertake the work. An alternative would be to use a video camera mounted also on a tripod, and then sample frames of the video footage to create a 360 degree image, this process would work in theory however the quality of the video camera would first need to be tested. The series of images would then be stitched together using a graphics package e.g. Adobe Photoshop 6 , and then imported into Macromedia Flash, an animation package in order to create a small animated image file that could be viewed on the web.

Dangers: Not all browsers support Macromedia Flash files, a non-flash version of the site

using standard images should be available for unsupported users. 360 degree images are large in file size and so will require a lengthy download, users may become impatient and exit the site, care must be taken to ensure reasonable page download times are kept and that users are informed as to when a large download is taking place.

- **Video Clips of Properties**

Benefits: As with the use of 360 degree panoramic images a much better interior display of properties could be achieved, encouraging browsers to become customers.

Implementation: Video footage taken to aid in the description of properties by house inspectors could be sampled and saved as short video files and integrated into the website. For the project additional external training would have to be given to staff or the project outsourced.

Dangers: Even the smallest of video clips are large in file size, so only users with ISDN or better connections to the Internet would benefit from this form of content enrichment.

- **Information on National and Provincial Parks on Vancouver Island**

Benefits: The National and provincial parks on Vancouver Island are a key tourist attraction, marketing these parks would encourage people to visit the island and hence become customers of Vancouver Island Holidays. The site content should contain more island information so browsers may enter the site initially looking for more information on Vancouver Island and not just because they require vacation accommodation, hence increasing the number of visitors to the site.

Implementation: The British Columbia Parks website contains a wealth of good well presented information, an introduction to parks in the vicinity of each property location could be added to the website accompanied with a “Further Information” hyperlink to the relevant section of the British Columbia Parks website, the B.C. Parks website would be opened in a new browser window to aid the visitors easy return to Vancouver-Island.com.

Dangers: A navigation route back to Vancouver-island.com should be maintained where possible as not to loose website traffic. External websites should be searched for possible links to direct competitor websites. It should be made clear to the visitors that Vancouver Island Holidays is in way responsible for content or reliability of external websites.

- **A German Language edition of the Website**

Benefits: The company could penetrate further in to the German market, German visitors would be given the facility to communicate in their native tongue language.

Implementation: The website content would be set to a translation consultancy.

Dangers: The company would have to send all website amendments translated for the German edition of the site producing a time delay for updating the website and high translation costs.

6.0 Selection of New Website Functionality

A meeting was held with Vancouver Island Holidays and all of the ideas were discussed. As the list contains a lot of good and beneficial items for the website, it was a very hard process in deciding which to implement in the time scale available.

For each idea the following topics were evaluated:

- Benefits to the business
- Benefits to the website users
- Risks / Dangers
- Time / Cost of implementation
- Ongoing costs e.g. support etc.

As the business is looking to increase its portfolio of property by 100% this year it was chosen to implement the facility to enable members of staff to create / edit and amend property location, and individual property information pages. The name E-WEB was given to the system proposal. This would allow the business to own property and location web content. All the existing properties would be moved to the new system. With such an increase in the number of properties members of the meeting identified that it may become an issue for web users to find suitable properties for rent so the interactive property locator search engine was also selected for implementation. Designing both modules of functionality simultaneously would save time as both would use the same database so from the design perspective it also made sense to design and implement the two modules together.

As a direct consequence of E-WEB the business will own the majority web content resulting in more up to date information and pricing, and more in-depth information on both locations and properties plus a new scanning procedure would be created to increase the quality of the images on the site.

To accommodate the creation and deletion of new property locations a dynamic navigation bar, NavBar would be implemented and include on each site page.

It was also agreed that the current map should be replaced with a click-able image map to aid further with the locating of suitable properties by users. As a direct result the legible map would also increase the information content of the site.

7.0 Design and Implementation

7.1 Requirements Lists.

Full individual page requirements can be found in appendix B of this report, below are requirement lists for each new module of functionality.

7.1.1 E -WEB

An administrator should have the facility:

1. Create new property pages.
2. Edit existing property pages
3. Assign a primary location to a property.
4. Assign a secondary location if applicable to a property
5. Assign a map location to a property.
6. Create and edit a short description for a property
7. Create and edit a long description for a property.
8. Assign the VIH unique property ID to the property.
9. Create and edit a short location comment for each property.
10. Link up to four images to be displayed on a property page.
11. Delete properties
12. On creation of a new property, the property should automatically become part of the property locator tool.
13. Create new property locations
14. Edit existing property locations
15. Delete existing property locations
16. Edit NavBar menu items

7.1.2 Property Locator

Users should be able to search for properties on the following fields:

1. Price rental per week
Users should have the facility to select the maximum rental price from a drop down list.
2. Property location

Users should have the facility to select one or more property locations.

3. Number of people

Users should have the facility to select the number of people requiring accommodation.

Properties that are too small to accommodate the group should not be returned in the results.

4. The results page should list only properties that match the search criteria, the property name, unique reference id number, number of people it sleeps, short description and first image of the property should be displayed.

7.1.3 Click-able Image Map

1. The image should be of high quality so that place names are legible.
2. Where possible all current property locations should be identifiable.
3. The map would consist of four sections called map locations:
 - North Vancouver Island
 - Central Vancouver Island
 - South Vancouver Island
 - West Coast.
4. All new properties will be assigned one of the above four map locations.
5. On the user selecting a map location a list of properties should be returned. The unique property reference id, property name, number of people it sleeps, short description and first image should be displayed
6. The map should be accessible from the NavBar, situated on the left of each accessible page.

7.2 Database Design

All of the three functionality modules require use of a common database. Currently the website does not receive a great number of concurrent users, from analysis of website usage statistics the maximum number of concurrent users is approximately ten, therefore a Microsoft Access 2000 Database will be used. This will provide a very cost effective solution, as Vancouver Island Holidays already has the necessary licence and no additional hosting costs will be incurred by requiring the use of an SQL server. Microsoft Access 2000 Databases have the potential to support up to two hundred and fifty-five concurrent database users. If usage levels increase significantly the database should be moved onto an SQL server or other dedicated database server. The database will be designed for this process to be performed quickly and easily via the Microsoft upgrade wizard.

The database should be designed to allow for a large increase in property locations and individual properties. It was decided that a menu bar should not consist of more than 20 items, any more was thought to reduce the navigability of the site.

All data input to the database will be via web forms allowing for data integrity constraints to be at data submission, coded into the active sever pages. This reduces un-necessary database connections and allows for easy upgrade of the database at a later date if required to an SQL server database or equivalent.

Unique property ids and location names are immediately assigned via Vancouver Island Holidays for invoice and brochure design purposes. The uniqueness of these fields will however be checked again at the database level in case of unplanned duplicate entries.

All images will be stored in the same directory on the server to allow for easy image sharing throughout the website, therefore requiring unique image filenames. Guidance on the naming convention and FTP process is covered in the training manual, a copy of which can be found in appendix E. The data integrity of image file names will be automatically checked by the NT file store.

The initial stage of the design process was to identity all of the data field including its size, type, default value and source.

7.2.1 Data fields for Property Pages

Data Field Name	Database Field Name	Data Field Type	Default Value	Required/ Unique	Access Field Type	Source
Unique Id	Id	Digits		Yes/Yes	Number	User Input
Location Description	Location	Text		Yes/No	Text	User Input
Short Description	ShortD	Text		No/No	Memo	User Input
Long Description	LongD	Text		Yes/No	Memo	User Input
Accommodation Description	Accommodation	Text		Yes/No	Memo	User Input
Rental price per week high season	PriceHigh	Digits		Yes/No	Number	User Input

Rental price per week low season	PriceLow	Digits		Yes/No	Number	User Input
Sleeps	Sleeps	Digits		Yes/No	Number	User Input
Image Link 1	Image1	Text		Yes/Yes	Text	User Input
Image Link 2	Image2	Text		No/Yes	Text	User Input
Image Link 3	Image3	Text		No/Yes	Text	User Input
Image Link 4	Image4	Text		No/Yes	Text	User Input
Primary Location	Primary_Loc	Text		Yes/No	Text	Drop Down of Unique Location Names
Secondary Location	Secondary_Loc	Text		No/No	Text	Drop Down of Unique Location Names
Map Location	Map_Location	Text		Yes/No	Text	Drop Down of Unique Map Locations

7.2.2 Data Fields for Location Pages

Data Field Name	Database Field Name	Data Field Type	Default Value	Required/Unique	Access Field Type	Source
Unique Location Name	Location_Name	Text		Yes/Yes	Text	User Input
Location Short Description	Location_ShortD	Text		Yes/No	Memo	User Input
Location Long Description	Location_LongD	Text		Yes/No	Memo	User Input
Image Link 1	Location_Image1	Text		No/Yes	Text	User Input
Image Link 2	Location_Image2	Text		No/Yes	Text	User Input
Image Link 3	Location_Image3	Text		No/Yes	Text	User Input

7.2.3 Data Fields for Click-able Image Map

Data Field Name	Database Field Name	Data Field Type	Default Value	Required/Unique	Access Field Type	Source
Unique Map Location Name	Map_Location	Text		Yes/Yes	Text	User Input
Location Long Description	Location_LongD	Text		Yes/No	Memo	User Input
Image Link 1	Location_Image1	Text		No/Yes	Text	User Input
Image Link 2	Location_Image2	Text		No/Yes	Text	User Input
Image Link 3	Location_Image3	Text		No/Yes	Text	User Input

7.2.4 Data Fields for Menus

Data Field Name	Database Field Name	Data Field Type	Default Value	Required/Unique	Access Field Type	Source
Unique Menu Name	Menu_Id	Text		Yes/Yes	Text	Database Admin
Menu Item 1	Pos1	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 2	Pos2	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 3	Pos3	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 4	Pos4	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 5	Pos5	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 6	Pos6	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 7	Pos7	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 8	Pos8	Text	BLANK	Yes/No	Text	Location Name Field

Menu Item 9	Pos9	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 10	Pos10	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 11	Pos11	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 12	Pos12	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 13	Pos13	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 14	Pos14	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 15	Pos15	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 16	Pos16	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 17	Pos17	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 18	Pos18	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 19	Pos19	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 20	Pos20	Text	BLANK	Yes/No	Text	Location Name Field
Menu Item 21	Pos21	Text	BLANK	Yes/Yes	Text	Database Admin

7.2.5 Database Tables

On examining the data field sources the relationships between data fields were easily identified allowing for the easy creation of database table schemes.

The database fields were then assigned to tables as detailed below. The table name is highlighted in bold type and unique primary key in italics. The uniqueness of primary keys will be validated at the database level.

{**Prop_Locations** (*Location_Name*), (Location_ShortD), (Location_LongD), (Location_Image1), (Location_Image2), (Location_Image3)}

{**Map_Locations** (*Map_Location*), (Location_LongD), (Location_Image1), (Location_Image2), (Location_Image3)}

{**Info** (*Id*), (Location), (ShortD), (LongD), (Accommodation), (PriceHigh), (PriceLow), (Sleeps), (Image1), (Image2), (Image3), (Image4), (Primary_Loc), (Secondary_Loc), (Map_Location)}

{**Menus** (*Menu_Id*), (Pos1), (Pos2), (Pos3), (Pos4), (Pos5), (Pos6), (Pos7), (Pos8), (Pos9), (Pos10), (Pos11), (Pos12), (Pos13), (Pos14), (Pos15), (Pos16), (Pos17), (Pos18), (Pos19), (Pos20), (Pos21)}

In the database described above the design does not limit in any way the number of properties, locations or map locations that can be added and a menu has the capability to support 20 menu items as specified in the requirements. Designing the menu table in this way allowed multiple menus to be created for the site, should they become a requirement at a later date.

7.2.6 Database Security

By default Microsoft Access Databases give read and write access to all users, therefore the database was secured. The database was secured using a workgroup information file to control database access. Three users were created:

Administrator –Full access to the database

Web User – Limited read only access the database

Web Admin User - Limited read and write access to the database

For security reasons usernames and passwords are not printed in this report. To enhance security passwords with write permissions are to be changed regularly and never contained in web server hosted files.

7.3 New Web Page Requirements

The new website functionalities also required a number of new web pages to be created. A total of four page updates and twenty-five new pages were created, brief details of which can be found in the tables below. An in depth description of each page can be found in appendix B of this report.

7.3.1 Website Administration Pages

Page No.	Page File Name	Description/Function
1	admin_concole.htm	Menu for site administration.
2	new_prop.asp	Create new property page
3	new_prop_update.asp	Submit new property information to database
4	prop_select.asp	Select a property id to edit
5	prop_edit.asp	Edit property information
6	prop_update.asp	Submit edited property information to database
7	prop_delete1.asp	Verify selection to delete property
8	prop_delete.asp	Delete a property from the database
9	new_location.asp	Create a new location
10	new_loc_up.asp	Submit new location information to database.
11	location_list.asp	Select location to edit
12	location_edit.asp	Edit location information
13	location_edit_up.asp	Submit edited location information
14	location_delete2.asp	Verify selection to delete location
15	location_delete.asp	Delete location from database
16	Menu_edit.asp	Edit NavBar
17	Menu_update.asp	Sumbit updates to NavBar

7.3.2 Public Access Pages

Page No.	Page File Name	Description / Function
18	default.asp	Update of home page incorporating database driven NavBar
19	contact.asp	Update of contact details page incorporating database driven NavBar
20	travel.asp	Update of travel links page incorporating database driven NavBar

21	check.asp/booking.asp	Update of check availability page incorporating database driven NavBar.
22	prop_loc_all.asp	New page giving a brief summary of all property locations included in the NavBar with hyperlinks to individual location pages.
23	property_location.asp	New Individual location page populated with text and image links from the database giving a brief overview of the location and properties available.
24	property_display.asp	New Individual property page populated with text and image links from the database.
25	prop_search.asp	New property search page
26	searchres.asp	New property search results page.
27	imagemap.asp	New map page
28	map_location.asp	New map location page populated by text and images from the database giving a brief overview of the location and properties available.
29	thankyou.asp	Sends email to Vancouver Island Holidays from availability request page.

7.4 New Graphic Requirements

All public access buttons on the website have the same design, a new search button was required to link to the search page from the navigation bar.

7.5 Graphical User Interface Design and Prototyping

All of the public access web pages will be used by members of the public and so need to be easy to navigate, clearly legible and have a clean and professional consistent layout. Any instructions were written in language is easily understood. Instructions do not contain words from the travel or IT business languages.

As the existing page layout constantly received praises for its ease of use the new page layouts have conformed where possible to the existing site design, in regards to the location of navigation bars and with respect to the colours, font face and font size used.

Pages in the administration console might contain words from the travel business language, but because the administrators have a very limited IT knowledge these pages were also made extremely

user friendly.

To test page layout and user friendly-ness the tools to create new properties and the page to display them were implemented first as prototypes, allowing for user input and for me to gain valuable user feedback that would improve the quality of the finished product. User input at this stage of the project and the use of prototyping was made possible by my choice of the iterated waterfall development life cycle, allowing elements of the system to be first tested by users before full implementation took place.

8.0 Prototyping

8.1 Implementation of the Prototype

In order for the prototype to work the sections of database first had to be built. To allow for possible changes in design as a result of user feedback only the required elements of the database were created, namely the Info table.

The web pages were then written as to the specifications that can be found in the appendix of this report. It was very important to develop a good prototype as this would be the first “hands on” experience users received and I believe first impressions always count in a system’s success.

8.2 Prototype Testing and User Involvement

On completion of the prototype a morning was spent with staff at Vancouver Island Holidays. I sat with users observing what elements of the page they found hard to understand, and discussing possible improvements. From the meeting the following improvements were agreed on:

- To reduce confusion between property long descriptions and short descriptions, on the creation of a new property only a long description will be required, the short description should be entered via editing the property page.
- On creating a new page the following text area fields should contain default examples, as user aids.
- As users would not be using this system every week a brief training manual should be produced by myself working closely with a member of staff, ensuring that it was written in a language that could be understood.

I am glad to say that the prototype received a very warm welcome and all users looked forward to the system go-live. The meeting not only enhanced the user-friendly-ness of the system but also eradicated user resistance to the system at go-live.

8.3 Modifications to Design

The modification to the design of the web pages used in the prototype were made and adopted where possible by other pages of the site administration tool. Full design specification of each page can be found in appendix B, modifications to the initial design are also noted.

9.0 Testing Plan.

Before the main part of the implementation took place a testing plan was written for each page. Writing a testing plan before implementation ensured an objective and fair evaluation of how each page performed.. The full testing plan is included in appendix C of this report. The testing not only included navigation, submission of data and page errors but also the testing of data integrity constraints.

10.0 Implementation.

Construction of the database was first completed which was followed by the implementation of the web pages as to the requirements specified in appendix B of this report.

The final stage of implementation was to add security to the database.

This stage of the project went very satisfactorily due to previous in depth planning and design of the system.

11.0 Testing

During implementation each web page was briefly tested, however in order to check navigation and the performance of the system as a whole, the previously written testing plan that can be found in appendix C was used.

11.1 Testing Feedback

Testing was initially carried out using Internet Explorer 5.5, a few content errors were identified, and were immediately corrected. A repeat of the testing was then carried out using Internet Explorer 4, Netscape Navigator 6 and Netscape Navigator 4. Netscape 4 was the only browser to produce page layout errors. However due to Netscape Navigator 4's large user population these had to be removed before go-live. Two full days were required to remove the page layout browser incompatibility errors. The whole site was then retested for browser compatibility with the previously mentioned web browsers.

During this phase of the project the code was also examined for optimisation. All drop down menus populated from database data were converted to array populated menus to reduce the time database connections were left open.

The results of each test in the testing plan can be found in the appendix C of this report.

12.0 System Go-Live

The go-live of the new system was in two phases; Vancouver Island Holidays was first given access to the system in a hidden directory on the web server to allow for database population, the second phase was to give public access to the site.

12.1 Phase 1, Vancouver Island Holidays Go-Live

A day was spent at the company to aid the staff in using the website administration tool to populate the database. A new image preparation procedure was also developed, documentation of which can be found in the training manual in appendix E of this report. Image preparation includes image scanning, resizing, touch-up and FTP, suitable image filename selection and FTP upload via Internet Explorer. By midday all were expert users of the system. The afternoon was spent talking to users gaining first system impressions and post go-live user feedback to aid me in future projects.

12.2 Phase 2, Public Access Go-Live

A full backup of the old website was made and new site given public access. Old website files were not removed but amended to point to the new site's equivalent page so hyperlinks stored by either search engines or users were not broken.

13.0 System Evaluation

13.1 System Usage by Vancouver Island Holidays

The system was designed with user friendliness in mind at every stage of the project. Good functionality and reliability were also critical success factors. The system has now been live for five weeks and I have not received any support requests from the company. Since the public go live four additional properties have been created and one existing property location deleted showing clearly that the system is in use.

A recent courtesy telephone conversation with the company confirmed that members of staff were not only using but enjoyed the task variation offered by using the website administration tool. The company now only wishes that creating a new brochure page would be as easy. The website is now more up to date than the company brochure.

A full project evaluation can be found in appendix A.

13.2 Website Usage

Since public go-live of the new website, visitor levels as expected have remained constant. On execution of the marketing plan, found in appendix D for Vancouver-Island.com I would predict the number of site visits to increase.

From analysis of individual page visits just over 45% of the site visitors that browsed the site further than the home page choose to use the property locator tool to search for suitable properties. A good enhancement to the tool would be to record all of the search queries for analysis allowing the company to identify the most sort after locations, average number of people in group parties and the maximum weekly rental price visitors are looking to pay. All of this information would aid in future marketing projects executed by the company.

The map page also saw high visitor usage approximately 35% of visitors visited the page however only 10% selected a map location suggesting that further instructions to the visitor may be required or that users only wanted to use it for property location reference purposes only. It can be concluded that visitors to the website prefer to search for properties using the property locator rather using the clickable image map. This conclusion should be re-assessed once more site usage information becomes available.

13.3 Website Limitations

The entire website utilises a Microsoft Access Database which could limit its access levels to the site in the future if usage levels on the site dramatically increase, this has already been documented and a contingency plan mentioned in section 7.2 of this report. At present the database has the potential to support up to two hundred and fifty-five concurrent users, however a noticeable reduction in performance would be noticeable with over 100 concurrent database users.

13.4 Success or Failure?

The finished product meets all the project objectives set out during the initialisation phase, however a new system not only needs to work to be a success it has to be used to achieve its full business advantage potential. Due to excellent user acceptance by the staff of Vancouver Island Holidays, partly due to the use of prototyping in the design process the website administration tool is in constant use whenever required. As described in section 13.2 web visitors are making good use of the new functionality and benefiting from more up to date and more accurate content enabled by the direct business ownership of the property and location pages.

A good project requires good project management by planning a project in detail any potential small issues that effect the smooth running of the project can be identified and dealt with before they escalate and allow the whole project's success and time-schedule to be threatened.

Through excellent management the project was delivered on time and without any incursion of additional hardware, software, website hosting or training costs. The project's on-time delivery was aided greatly from the early creation of a project plan, including a detailed time chart in the form of a Gantt chart, see appendix A and my good self-discipline forcing myself to keep to the timescale throughout the projects entirety. In the eyes of both the company Vancouver Island Holidays, and myself the project was a definite success.

Bibliography

Avison DE and Fitzgerald G, (1995), **Information Systems Development Methodologies, Techniques and Tools (second edition)**, McGraw-Hill Book Company Europe.

Avison DE and Fitzgerald G, (1988), **Information Systems Development Methodologies, Techniques and Tools (first edition)**, Blackwell Scientific Publications.

Blair G and Meadows S, (1996), **Real-Life Guide to Organisational Change**, Gower

Damodaran L, Simpson A, Wilson P, (1980), **Designing Systems for People**, NCC

Gough TG, (2001), **Notes on People-Centred Information Systems Development**, School of Computing, University of Leeds.

Mason D and Willcocks L, (1994), **Systems Analysis, Systems Design**, Alfred Walter Ltd.

The Faculty of Engineering Website, University of Waterloo, Canada, <http://www.eng.uwaterloo.ca> [10th December 2001]

Vancouver Island Holidays UK Ltd.(2001), **Vancouver Island Holidays Brochure 2001**

Vancouver Island Holidays Website, <http://www.vancouver-island.com> [1st April 2002]

Appendix A - Project Evaluation

I am personally very satisfied and pleased with the outcome of project, particularly as the interactive website developed as part of the project is now in production.

I feel that there are many advantages and disadvantages of choosing to do an external project.

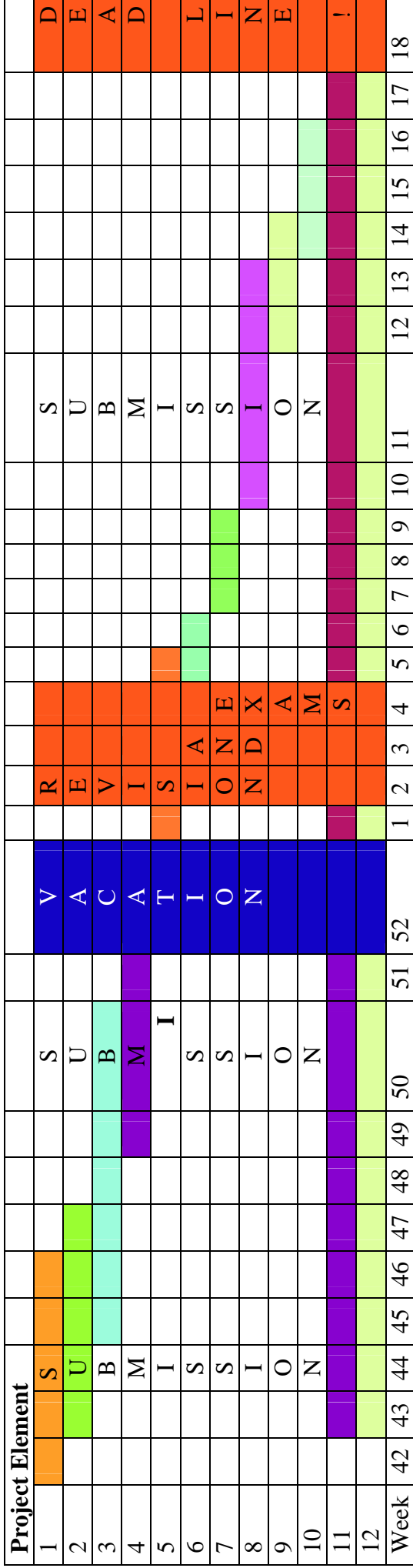
The advantages are enormous. A key area of personal growth was in communication and diplomacy skills through dealing directly with the external project owner, Vancouver Island Holidays the experience taught me the true value of preparing and planning meeting agendas, taking minutes and task allocation. Meeting the deadlines set with the company helped keep the project to the schedule shown in the Gantt chart on the following page in Figure 1.

With an external project you not only work for yourself but in effect work for the company and the company relies on you resulting in a lot more pressure to produce a completed on-time project. As I find pressure a good motivator this proved to be to my advantage however this could be seen in other circumstances to be negative.

The project often suffered during the initial detailed planning stages because of changes in requirements, however this experience taught me just how quickly system requirements can change in business and importance of remaining flexible during the project design stages. The projects progress was also hindered by the amount of time taken for the company's Internet service provider to switch the website's hosting platform from Unix to a Windows NT environment. In hindsight this request should have been made earlier on in the project. The detailed planning and documenting of the implementation stage of the project, produced unbelievable advantages in ease of implementation. This was the first time I had fully designed a system on paper first before commencing implementation, where possible in the future I will definitely do the same, as the benefit was unmeasurable. I also realised the true benefits of prototyping, although few design enhancements were executed as a result, project interest and support from future users of the system was generated which was a vital factor in the projects success at go-live.

At the start of the project a considerable amount of time was spent investigating the culture of the company giving to gain a good insight into the internal operations, without this knowledge the solution could not have been designed and implemented to successfully meet business requirements. This proved to be an extremely valuable stage of the project.

Figure 1. Gantt Chart of Project Schedule



Key to Project Elements

1. Analysis of Vancouver Island Holidays
2. Analysis of Vancouver Island Holidays' current web site content and functionality
3. Analysis of the Vancouver Island Holidays' competition and Vancouver Island in general with respect as to what the island can offer tourists
4. Generation of ideas
5. Feasibility Study, Feasibility Report.
6. Analysis of Selected Functionality
7. Design of Selected Functionality
8. Implementation of Selected Functionality
9. Testing and review of new web site Functionality
10. Project conclusion, has the project been a success?
11. An ongoing stage during the entirety of the project will be the development of a marketing strategy plan for the web site.
12. Writing of project report

Appendix B

1.0 System Specification / Requirements

1.1 NavBar

Requirements/ Design Specification:

1. **Adopt the existing menu design.**
2. **Display all select locations in the NavBar row of the Menus table of the database**
3. **Blanks should not be displayed**
4. **The information from the recordset should be immediately passed into an array and connection to the database closed to reduce the amount of time the database connection is open.**
5. **Location names should link to location pages.**

1.2 Individual Web Page Requirements

Notes

Filenames in production may be versioned by suffixes.

1.2.1 Administration Pages

Web page filename: admin_concole.htm

Requirements/ Design Specification:

1. **Link to add new properties.**
2. **Link to edit existing properties.**
3. **Link to add new locations.**
4. **Link to edit existing locations.**
5. **Link edit NavBar**

Modification to design:

None.

Web page filename: new_prop.asp

Requirements/ Design Specification:

1. Web form
2. Text input field for location description.(input required)

3. Text input field for property name.(input required)
4. Text input field for property ref id.(digits only, input required)
5. Text input field for number of people property can sleep.(digits only, input required)
6. Text input field for high season rental price.(digits only, input required)
7. Text input field for low season rental price.(digits only, input required)
8. Text input field for image 1 link.(input required).
9. Text input field for image 2 link.(input optional).
10. Text input field for image 3 link.(input optional).
11. Text input field for image 4 link.(input optional).
12. Text area input field for property short description. (input required)
13. Text area input field for property long description. (input required)
14. Text area input field for accommodation description. (input required)
15. Drop down selection box populated with location names form the prop_locations table of the database to assign primary location of a property.(input required)
16. Drop down selection box populated with location names form the prop_locations table of the database to assign secondary location of a property. (input optional)
17. Drop down selection box populated with map location names form the map_locations table of the database to assign the map location of a property. (input required)
18. Input text field for username. (input required)
19. Input password field for password. (input required)
20. Submit and reset buttons

Modification to design:

- 1. The location description text input field should have the default value “Enter Location Description.”**
- 2. The property name text input field should have the default value “Enter Property Name.”**
- 3. The property id text input filed should have the default value” Enter Ref ID.”**
- 4. The property short description text area input field should be removed as to remove confusion. Short descriptions should be entered only while editing a previously created property.**

Web page filename: new_prop_update.asp

Requirements/ Design Specification:

1. Check to make sure the property id is unique in the database, if not throw error.
2. Submit all form data to the database.
3. Write success message

Modification to design:

None

Web page filename: prop_select.asp

Requirements/ Design Specification:

1. Produce a list of property ids in the database.
2. Each property id should act as a hyperlink to the edit_prop.asp page.

Modification to design:

None

Web page filename: edit_prop.asp

Requirements/ Design Specification:

1. Web form
2. Text input field for location description.(value from database)
3. Text input field for property name.(value from database)
4. Display of property ref id.(value from database)
5. Text input field for number of people property can sleep.(digits only, value from

- database)
6. Text input field for high season rental price.(digits only, value from database)
 7. Text input field for low season rental price.(digits only, value from database)
 8. Text input field for image 1 link.(value from database).
 9. Text input field for image 2 link.(input optional, value from database).
 10. Text input field for image 3 link.(input optional, value from database).
 11. Text input field for image 4 link.(input optional, value from database).
 12. Text area input field for property short description. (input required)
 13. Text area input field for property long description. (value from database)
 14. Text area input field for accommodation description. (value from database)
 15. Drop down selection box populated with location names form the prop_locations table of the database to assign primary location of a property.(value from database)
 16. Drop down selection box populated with location names form the prop_locations table of the database to assign secondary location of a property. (input optional, value from database)
 17. Drop down selection box populated with map location names form the map_locations table of the database to assign the map location of a property. (value from database)
 18. Input text field for username. (input required)
 19. Input password field for password. (input required)
 20. Delete property link
 21. Update and reset buttons

Modification to design:

1. **The short description text input field should have the default value “Enter Short Description.”**

Web page file name: prop_update.asp

Requirements/ Design Specification:

1. Submit form data to database
2. Write successful message

Modification to design:

None

Web page filename: prop_delete1.asp

Requirements/ Design Specification:

1. Verify the user wishes to delete
2. Input text field for username. (input required)
3. Input password field for password. (input required)
4. Delete and reset buttons

Modification to design:

None

Web page filename: prop_delete.asp

Requirements/ Design Specification:

1. Delete property from database.
2. Write successful message

Modification to design:

None

Web page filename: new_location.asp

Requirements/ Design Specification:

1. Text input field for location name.(url safe, input required)
2. Text area input field for location short description. (input required)
3. Text area input field for location long description. (input required)
4. Text input field for image 1 link. (input optional)
5. Text input field for image 2 link. (input optional)
6. Text input field for image 3 link. (input optional)
7. Text input field for image 4 link. (input optional)
8. Text input field for username.(input required)
9. Text input field for password (password required)
10. Add location and reset buttons.

Modification to design:

None

Web page filename: new_loc_up.asp

Requirements/ Design Specification:

1. Check for uniqueness of submitted location name, if not unique then throw error.
2. Submit new location to database.

Modification to design:

None

Web page filename: location_list.asp

Requirements/ Design Specification:

1. Drop down selection box populated with the available locations in the database.
2. Submit, reset buttons

Modification to design:

None

Web page filename: location_edit.asp

Requirements/ Design Specification:

1. Text input field for location name.(url safe, value from database)
2. Text area input field for location short description. (value from database)
3. Text area input field for location long description. (value from database)
4. Text input field for image 1 link. (value from database)
5. Text input field for image 2 link. (value from database)
6. Text input field for image 3 link. (value from database)
7. Text input field for image 4 link. (value from database)

8. Text input field for username.(input required)
9. Text input field for password (password required)
10. Add location and reset buttons.
11. Delete location link.

Modification to design:

None

Web page filename: location_edit_up.asp

Requirements/ Design Specification:

1. Check for uniqueness of submitted location name, if not unique then throw error.
2. Submit new location to database.

Modification to design:

None

Web page filename: location_delete2.asp

Requirements/ Design Specification:

1. Deletion verification message to users.
2. Input text field for username. (input required)
3. Input password field.(password required)
4. Delete location and reset buttons.

Modification to design:

None

Web page filename: location_delete.asp

Requirements/ Design Specification:

1. Delete location from database.
2. Display deletion successful message to user.

Modification to design:

None

Web page filename: menu_edit.asp

Requirements/ Design Specification:

1. Brief user instructions
2. Drop down selection box for menu position 1 populated with location names from the prop_locations table.(Value from database)
3. Drop down selection box for menu position 2 populated with location names from the prop_locations table.(Value from database)
4. Drop down selection box for menu position 3 populated with location names from the prop_locations table.(Value from database)
5. Drop down selection box for menu position 4 populated with location names from the prop_locations table.(Value from database)
6. Drop down selection box for menu position 5 populated with location names from the prop_locations table.(Value from database)
7. Drop down selection box for menu position 6 populated with location names from the prop_locations table.(Value from database)
8. Drop down selection box for menu position 7 populated with location names from the prop_locations table.(Value from database)
9. Drop down selection box for menu position 8 populated with location names from the

- prop_locations table.(Value from database)
10. Drop down selection box for menu position 9 populated with location names from the prop_locations table.(Value from database)
 11. Drop down selection box for menu position 10 populated with location names from the prop_locations table.(Value from database)
 12. Drop down selection box for menu position 11 populated with location names from the prop_locations table.(Value from database)
 13. Drop down selection box for menu position 12 populated with location names from the prop_locations table.(Value from database)
 14. Drop down selection box for menu position 13 populated with location names from the prop_locations table.(Value from database)
 15. Drop down selection box for menu position 14 populated with location names from the prop_locations table.(Value from database)
 16. Drop down selection box for menu position 15 populated with location names from the prop_locations table.(Value from database)
 17. Drop down selection box for menu position 16 populated with location names from the prop_locations table.(Value from database)
 18. Drop down selection box for menu position 17 populated with location names from the prop_locations table.(Value from database)
 19. Drop down selection box for menu position 18 populated with location names from the prop_locations table.(Value from database)
 20. Drop down selection box for menu position 19 populated with location names from the prop_locations table.(Value from database)
 21. Drop down selection box for menu position 20 populated with location names from the prop_locations table.(Value from database)
 22. Text input field for username. (input required)
 23. Password input field for password. (input required)

Modification to design:

None

Web page filename: menu_update.asp

Requirements/ Design Specification:

1. Submit menu updates to database
2. Display update successful message when complete.

Modification to design:

None

1.2.2 Public Access Pages

Web page filename: default.asp

Requirements/ Design Specification:

1. Modification of default.htm to include dynamic NavBar.
2. Modification of links of default.htm to newly created asp files for contact information, availability, travel links, map, search and all property locations.

Modification to design:

None

Web page filename: conatct.asp

Requirements/ Design Specification:

1. Modification of contact.htm to include dynamic NavBar.
2. Modification of links of contact.htm to newly created asp files for home page, availability, travel links, map, search and all property locations.

Modification to design:

None

Web page filename: travel.asp

Requirements/ Design Specification:

1. Modification of travel.htm to include dynamic NavBar.
2. Modification of links of travel.htm to newly created asp files for home page, availability, contact information, map, search and all property locations.

Modification to design:

None

Web page filename: check.asp

Requirements/ Design Specification:

1. Modification of check.htm to include dynamic NavBar.
2. Amend submission action link to thankyou.asp
3. Modification of links of check.htm to newly created asp files for home page, contact information, travel links, map, search and all property locations.

Modification to design:

None

Web page filename: availability.asp

Requirements/ Design Specification:

1. Modification of availability.htm to include dynamic NavBar.
2. Amend submission action link to thankyou.asp
3. Modification of links of availability.htm to newly created asp files for home page, contact information, travel links, map, search and all property locations.

Modification to design:

None

Web page filename: prop_loc_all.asp

Requirements/ Design Specification:

1. Adopt standard page layout.
2. Display list of all location names followed by short descriptions accompanied by the locations first image if available.
3. Location names should link to property location pages.

Modification to design:

None

Web page filename: property_location.asp

Requirements/ Design Specification:

1. Adopt standard page layout

2. Display location Name
3. Display location long description.
4. Display all available location images.
5. Display list of properties assigned to location.
6. Each property should have a property id, property name, how many people the property sleeps, short description and first image.
7. Each property title should link to the individual property information page.

Modification to design:

None

Web page filename: prop_display.asp

Requirements/ Design Specification:

1. Adopt standard page layout.
2. Display location description.
3. Display property reference id.
4. Display the number of people the property can accommodate.
5. Display property long description.
6. Display accommodation description.
7. Display high season rental price.
8. Display low season rental price.
9. Direct link via check graphic to check availability page.

Modification to design:

None

Web page filename: prop_search.asp

Requirements/ Design Specification:

1. Adopt standard page layout
2. Check box for each property locations included in the NavBar.
3. Drop down box to select number of people accommodation is required for.
4. Text input box for maximum weekly rental price in UK £s (digits only)
5. Search and reset buttons.

Modification to design:

None

Web page filename: searchres.asp

Requirements/ Design Specification:

1. Adopt standard page layout.
2. Display list of properties that match selected search criteria.
3. The display of each property should consist of its property ref id, property name, the number of people the property can sleep and the properties first image.
4. The title of each property should link to the individual property page.

Modification to design:

None

Web page filename: imagemap.asp

Requirements/ Design Specification:

1. Adopt the standard page layout
2. Contain the newly created click-able image map.
3. Each image map section should link to the respective map location page.
4. The image map should be divided into the following sections:
 - North Vancouver Island
 - South Vancouver Island
 - Central Vancouver Island
 - West Coast

Modification to design:

None

Web page filename: map_location.asp

Requirements/ Design Specification:

1. Display map location name.
2. Display map location description if available.
3. Display all available map location images.
4. Display all properties that are situated in the selected map location.
5. Property display should contain property id, property name, the number of people the property can accommodate and the property's first image.
6. The property title should link to individual property page.

Modification to design:

None

Web page filename: thankyou.asp

Requirements/ Design Specification:

1. Adopt the standard page layout
2. Provide a thank you message to the user.
3. Submit the check availability information from check.asp or availability.asp to a pearl script in the cgi bin to generate an email to Vancouver Island Holidays.

Modification to design:

None

Appendix C

1.0 Testing Plan

1.1 Individual Page Tests

Page filename:default.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename:contact.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename:travel.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename:check.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename:availability.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: admin_concole.htm

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: new_prop.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: new_prop_update.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: prop_select.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: edit_prop.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: prop_update.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: prop_delete1.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: prop_delete.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: new_location.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: new_loc_up.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: location_list.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: location_edit.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: location_edit_up.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: location_delete2.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: location_delete.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: menu_edit.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: edit_prop.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: menu_update.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: default.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: prop_loc_all.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: property_location.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: prop_display.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: prop_search.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: imagemap.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Page filename: map_location.asp

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

Test Description	Pass/Fail
All page requirements met.	
All page links correct.	
Layout correct	
Content Correct	

Additional Comments:

1.2 Quick System Tests

Test Description	Pass/Fail
It should be impossible to create two properties under the same property id	
It should be impossible to create two locations with the exact same location name.	
On no properties being found in a search the system should not error	
On a location not having any assigned properties the location pages should not error.	
On creating a new location the new location should become an option in the NavBar dropdown automatically.	
The search location checkboxes should directly reflect the selected NavBar options.	
All database amendments should require a valid username and password to be submitted with sufficient user write.	
The user name and password used by public access pages should only have read access to the required database tables.	
Forms should not be allowed to be submitted if required fields as specified in the page requirements are empty.	
On all pages where recordsets are created, recordsets and database connections should remain open for the minimum amount of time.	
Record locking record sets should only be used where essential, their should be no requirement for their use in public access pages	

Additional Comments:

Appendix D

Marketing Report

This document is aimed to give Vancouver Island Holidays a number of ideas of how to promote their site rather than to act as a marketing strategy for the company.

Current Situation

Vancouver-Island.com on average receives between four and five hundred individual visits per week. As most users are connected to the internet via a dial up connection it is impossible to distinguish due to floating IP addresses which visits are from repeat visitors. On further analysis of the website usage statistics it was concluded that the majority of visitors exit the site via the individual property pages.

The website offers detailed information on the properties the company has to offer however there are no “freebies” for the browser. The site is only of interest to people who want to rent a vacation property and this is the only way a visitor would browse onto the site.

The site can be found on the majority of search engines however rankings are normally low.

The site is not advertised at all on the Internet and is not linked from any organisations apart from search engines and the Nanaimo tourism website.

Increase on-line advertising

Advertising online is not expensive, there are many tourist specific websites for Vancouver Island and British Columbia. The majority of web users will find these sites first as they have a high ranking with the popular search engines. A good site to advertise on would be, VancouverIsland.com .

Business listings are also offered by Yahoo. Their sites are categorised so Vancouver Island Holidays could be listed under the recently created section, Vancouver Island called “Vacation Rentals”.

Search Engines

Search engines make use of meta data stored in the header of web pages. In particular search engines examine abstract and keyword meta data. At present only keyword meta data is included on the site.

To increase search rankings abstract meta data should also be included. Search engines also look at page titles so each title on the website should be checked for its suitability.

URL Web Addresses

So that the customer can identify with the company and to avoid confusion only one URL address should be used, this being www.vancouver-island.com. To promote the URL it can be displayed on all business stationary and even casual wear.

An Attractive Website

The website statistic reports are a very useful tool in analysing how the website is being used. It shows the entry and exit points indicating what users are interested in and perhaps when they become bored and leave the site. The various exit points could be analysed and made more exciting to deter people from leaving the site or to encourage repeat visits. This could be improved by adding dynamic content such as weather forecasts, e-postcards, links to services such as car rental companies, ferry times, maps, tourist offices so there is more in depth information about the various locations available, an exchange rate link and even a newsletter providing information on any new properties that have been added to the site, promotions, special offers and seasonal attractions in the various areas. The website needs to offer more than just vacation rental information.

A Communicative Website

Create a site suggestions box for users to post what additional information they require and so that they may voice any positive or negative feedback about the site.

A Growing Website

To remain at a competitive advantage the website must be constantly evolving. A key growth area could be to promote companies that would like to advertise on the website provided they are in keeping with the company's image for example sporting activities such as fishing, skiing, whale watching, sailing, hiking, mountain biking etc. In turn the website would receive more hits from these sites of interest from users that may not just be focused on holiday rentals, thus increasing the size of the user base and possible business.

Appendix E

User Manual

Vancouver-Island.com

Web Site Administration Manual

Version 1.0



Contents

Section	Page No.
1.0 Procedures	1
2.0 Image Preparation and Upload	2
2.1 Scanning and preparing a new image of a property or location for upload onto the website	2
2.2 Uploading the image onto the website	2
3.0 The Administration Console	3
4.0 Properties	4
4.1 Adding Properties	4
4.2 Editing Properties and Adding a Property Short Description	5
4.3 Deleting Properties	5
5.0 Property Locations	6
5.1 Adding New Property Locations	6
5.2 Editing Property Locations	7
5.3 Deleting Property Locations	7
6.0 Edit NavBar	8
7.0 What's What	9
7.1 All Property Locations Page	9
7.2 Location Page	10
7.3 Property Page	11

1.0 Procedures

1.1 General Information

1. Acquire / Scan any required images.
2. Upload images to web server.
3. Make alterations to web site.
4. Check alterations made.

1.2 Adding a New Property to New Property Location

1. Create New Property Location.
2. Create New Property Page

Image Preparation and Upload

2.1 Scanning and preparing a new image of a property or location for upload onto the website

Scanning a photo:

- From the Windows Start Menu load “Microsoft PhotoDraw 2000”
- Place the photo in the scanner
- Go to “file” and click on “scan picture”
- Click on “your scanner software” and then “scan”. This pre-scans the image.
- Then mark the area by dragging the mouse to select what area of the image needs to be scanned.
- As these images are being used on the Internet reduce the dpi to 72dpi and the scale to 80%.
- Click on scan

Preparing the image for the website:

- Touch up the image to improve the picture quality by using the sharpness and contrast options available under the “Touch Up Menu”.
- So that all the images appear in the same format on the website “resize” the picture to width of 200 pixels and create “soft edges” on scale of 10.

For more help on using Microsoft PhotoDraw press the “F1” key at any time.

Saving the image for the website:

- Save the image by selecting “save for use in” on the “file” menu.
- Click the following options in the pop up boxes:
 - on the web
 - as a picture
 - fill with background colour
 - white
 - JPG best quality image
 - and save (as JPG) using a filename of property reference no./Id, suffixed by a respective letter a,b,c or d, save on a known location on the C drive.

2.2 Uploading the image onto the website

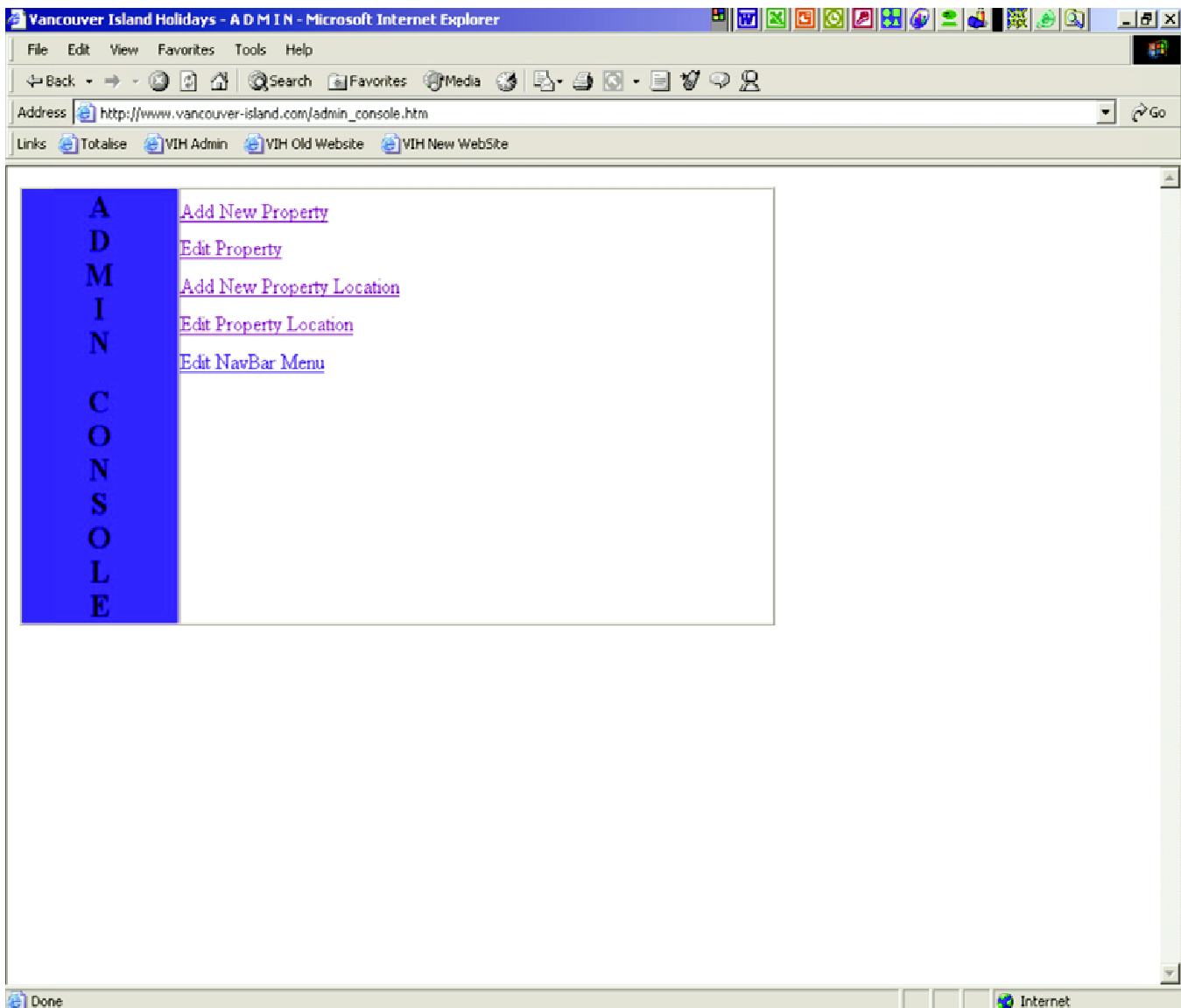
- Now open the folder “VIH Web Images” which is a link to a folder on the web server. The link can be found on the desktop (This will require an Internet connection.)
- Simply drag the saved image files on the C drive into this folder.
- The images will be automatically uploaded onto the web.
- The images can now be used on the web site editing the required image links with the exact filenames of the desired saved image.

3.0 The Administration Console

http://www.vancouver-island.com/admin_console.htm

From the home page of the web site Admin Console, web site administrators have the facility to:

- **Add New Properties**
- **Edit / Delete Existing Properties**
- **Add New Locations**
- **Edit / Delete Existing Locations**
- **Edit NavBar**



4.0 Properties

4.1 Adding Properties

Select **Add New Property** from the Admin Console homepage. The page below will load. Complete all mandatory fields and click the “Update Page” button. All fields are mandatory except those labelled in *italics*. On error please follow on screen instructions.

The screenshot shows the 'Add New Property' form in the Vancouver Island Holidays admin console. The browser window title is 'Pacific Breeze - Microsoft Internet Explorer' and the address bar shows 'http://www.vancouver-island.com/new_prop.asp'. The sidebar on the left contains the 'Vancouver Island Holidays' logo and a list of locations: West Coast, Victoria - Sooke, Nanaimo, Schooner Cove, Qualicum, Comox Valley, Cortes Island, and Salt Spring Island. Below the sidebar are links for HOME, Search, Availability, Contact, and Map, along with a link to 'Click here to make travel arrangements'. The main form area contains the following fields and callouts:

- Enter Location Description.** (points to 'Enter Location Description' text box)
- Enter Property Name.** (points to 'Enter Property Name' text box)
- Enter Unique Property Ref No.** (points to 'Enter RefID' text box)
- Enter Max No of People** (points to 'Max No of People' text box)
- Enter High and Low Season Rental Price per Week** (points to 'Low Season' and 'High Season' text boxes)
- Enter Long Property Description** (points to 'Long Description' text area)
- Enter Image Link 1** (points to 'Image1' text box)
- Enter Image Link 2** (points to 'Image 2' text box)
- Enter Accommodation Description.** (points to 'Accommodation Description' text area)
- Enter Image Link 3** (points to 'Image 3' text box)
- Enter Image Link 4** (points to 'Image4' text box)
- Select Primary Property Location.** (points to 'Primary Location' dropdown)
- Select Secondary Property Location.** (points to 'Secondary Location' dropdown)
- Select Map Location** (points to 'Map Location' dropdown)
- Enter Username and Password.** (points to 'User Name' and 'Password' text boxes)

At the bottom of the form, there is a 'Check Availability' button and 'Update Page' and 'Reset' buttons.

4.2 Editing Properties and Adding a Property Short Description

- Select Edit Property from the Admin Console home page.
- Select the House Ref Number / Id you require to edit.

The page will load as shown in Fig with the already uploaded house information. An additional text box will be shown where a short text description can be added.

- Make all necessary alterations
- Enter username and password.
- Click “Update Page” button.

If error please follow the on screen instructions.

4.3 Deleting Properties

- Select Edit Property from the Admin Console home page.
- Select the House Ref Number / Id you want to delete.

The page will load as shown in Fig with the already uploaded house information. An additional text box will be shown for the property’s short description.

- Select “Delete Property”
- Enter username and password.
- Select “Delete” Button.

If error please follow the on screen instructions.

5.0 Property Locations

5.1 Adding New Property Locations

Select **Add New Property Location** from the Admin Console homepage. The page below will load. Complete all mandatory fields and click the “Add Location” button. All fields are mandatory except those labelled in *italics*. On error please follow on screen instructions.

Add New Property Location Location Names should not contain "&"s

Location Name:

Location Short Description:

Location Long Description:

Image 1:

Image 2:

Image 3:

User Name:

Password:

Enter Unique Location Name.

Enter Location Short Description.

Enter Location Long Description.

Enter Image 1 Link.

Enter Image 2 Link.

Enter Image 3 Link.

Enter Username and Password.

5.2 Editing Property Locations

- Select Edit Property Location from the Admin Console home page.
- Select the Location Name you wish to edit.
- Click “Submit” button.

The page will load as shown in Fig with the already uploaded property location information.

- Make all necessary alterations
- Enter username and password.
- Click “Update Location Info” button.

If error please follow the on screen instructions.

5.3 Deleting Property Locations

- Select Edit Property Location from the Admin Console home page.
- Select the Location Name you wish to edit.
- Click “Submit” button.

The page will load as shown in Fig with the already uploaded property location information.

- Select “Delete Property Location”
- Enter username and password.
- Select “Delete Location” Button.

If error please follow the on screen instructions.

6.0 Edit NavBar

Select edit **NavBar** from the Admin Console homepage. The page below will load. Select location name from each required menu item drop down. Menu items should be used in chronological order, if a menu item is not required then select “BLANK” from the drop down. On completion of username and password click “ Submit”.

If error please follow on screen instructions.

Nav Bar Edit

Select a menu item from the drop down.
Menu items should be filled in sequentially with no BLANKs.
BLANK values will not be displayed on the site.

Menu Item 1	West Coast
Menu Item 2	Victoria - Sooke
Menu Item 3	Nanaimo
Menu Item 4	Schooner Cove
Menu Item 5	Qualicum
Menu Item 6	Comox Valley
Menu Item 7	Cortes Island
Menu Item 8	Salt Spring Island
Menu Item 9	BLANK
Menu Item 10	BLANK
Menu Item 11	BLANK
Menu Item 12	Comox Valley
Menu Item 13	Cortes Island
Menu Item 14	Nanaimo
Menu Item 15	Qualicum
Menu Item 16	Salt Spring Island
Menu Item 17	Schooner Cove
Menu Item 18	Victoria - Sooke
Menu Item 19	West Coast
Menu Item 20	BLANK

User Name:

Password:

7.0 Whats What?

7.1 All Property Locations Page

The screenshot shows a Microsoft Internet Explorer browser window displaying the website 'Vancouver Island Holidays - All Property Locations'. The address bar shows the URL 'http://www.vancouver-island.com/Property_Loc_All.asp'. The page features a dark sidebar on the left with the site logo and a navigation menu. The main content area lists three locations: 'Comox Valley', 'Cortes Island', and 'Nanaimo'. Annotations with arrows point to specific elements: 'Unique Location Name.' points to the 'Comox Valley' heading; 'Short Location Description.' points to the paragraph describing Comox Valley; 'NavBar.' points to the 'Cortes Island' heading; and 'Location Link Image 1.' points to a landscape photograph of a lake and forest.

Vancouver Island Holidays

Properties

- West Coast
- Victoria - Sooke
- Nanaimo
- Schooner Cove
- Qualicum
- Comox Valley
- Cortes Island
- Salt Spring Island

HOME

- Search
- Availability
- Contact
- Map

Click here to make travel arrangements

Comox Valley

Comox Valley is located midway up the east coast of Vancouver Island and enjoys almost 2000 hours of sunshine every year. The mild weather creates a wonderful atmosphere for year-round activities, including golfing, hiking, swimming, boating, fishing, skiing and kayaking or exploring the Islands of Hornby and Denman, ideal for biking.

Cortes Island

Enchanting Cortes Island lies off Vancouver Island at the northern end of the Strait of Georgia at the gateway to Desolation Sound. Lagoons with abundant shellfish, deep forests and fascinating wildlife, warm crystal clear lakes and white sandy beaches offer swimming, fishing, kayaking, biking and hiking or total relaxation

Nanaimo

Nanaimo is the heartbeat of Vancouver Island, serving as the centre of all attractions and activities on the Island. It's only logical to use the city of Nanaimo as a home base for your Islands explorations. The wide variety of attractions, beautiful parks make central Vancouver Island an outstanding destination.

Unique Location Name.

Short Location Description.

NavBar.

Location Link Image 1.

7.2 Location Page

The screenshot shows a Microsoft Internet Explorer browser window displaying the website http://www.vancouver-island.com/Property_Location.asp?Location=Cortes+Island. The page content includes a navigation bar on the left, a main heading for 'Cortes Island', a detailed description, two images (a lake and a sailboat), and a list of properties. Annotations with arrows point to various elements:

- Unique Location Name.** points to the heading 'Cortes Island'.
- Location Long Description.** points to the main text block.
- NavBar.** points to the navigation bar on the left.
- Location Link Image 1.** points to the image of a lake.
- Location Link Image 2.** points to the image of a sailboat.
- Slot for Location Image 3.** points to an empty space below the sailboat image.
- Property Ref No. / Id.** points to the text '20 The White House'.
- Property Name.** points to the text 'Sleeps: 6'.
- Max No. of People.** points to the text 'Sleeps: 6'.
- Property Short Description.** points to the text 'The natural setting of this interesting property...'.
- Property Link Image 1.** points to the image of a house.

7.3 Property Page

Vancouver Island Holidays - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.vancouver-island.com/prop_display4dm.asp?House_Id=20

Links Totalise VIH Admin VIH Old Website VIH New WebSite

Vancouver Island Holidays

Properties

- West Coast
- Victoria - Sooke
- Nanaimo
- Schooner Cove
- Qualicum
- Comox Valley
- Cortes Island
- Salt Spring Island

HOME

- Search
- Availability
- Contact
- Map

Click here to make travel arrangements

On Cortes Island

Location Description

Property Name.

Property Ref /Id

The White House Ref No.20

Max No. of People.

Sleeps:6

Price per week in: U.S. \$

Low Season: 550

High Season: 700

High and Low Season Rental Price

Property Image 1.

Property Long Description

The natural setting of this interesting property at Hague Lake affords beautiful panoramic views across lake, forests and mountains from the large rear deck and most rooms. Immediate access to the private, sandy beach below and the owner's rowing boat assure a wonderful vacation.

Property Image 2

NavBar

Accommodation:

1 double bedroom, 1 bedroom with bunks, 1 single bedroom, 2 bathrooms/wc, kitchen fully fitted and dishwasher etc., dining area, sunny room with fireplace and access to large deck having patio furniture and BBQ, laundry, cloakroom, lounge with fireplace, TV, VCR. Upstairs: 1 double bedroom having private deck off, 1 bathroom/wc with jacuzzi tub. Children welcome - Smoking outdoors only..

Location of Image 3

Accommodation Description.

Property Image 4

Check Availability

Done Local intranet